

Basics of Neurology MCQ Question Answer

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Question: 1. Topic: Seizure

Subject: Medicine

Of the following, which is the most frequent cause of seizures in the elderly?

Option A. Alcohol withdrawal

Option B. Stroke

Option C. Head trauma

Option D. Hypoglycemia

Question: 2. Topic: Intracranial Hemorrhage

Subject: Medicine

The most significant risk factor for spontaneous intracerebral hemorrhage is:

Option A. Atrial fibrillation

Option B. Cigarette smoking

Option C. Excessive alcohol use

Option D. Hypertension

Question: 3. Topic: Guillain-Barré syndrome

Subject: Medicine

Guillain-Barré syndrome is not associated with which of the following?

Option A. Proximal muscle weakness

Option B. Areflexia

Option C. Infection with C. jejuni

Option D. Treatment with corticosteroids

Question: 4. Topic: Hepatic Encephalopathy

Subject: Medicine

A 50-year-old man with a history of hemochromatosis presents to the emergency room vomiting up bright red blood. He had his most recent phlebotomy yesterday. His blood pressure is 110/85 mm Hg, his pulse 115/min; his face is flushed, and he is diaphoretic. During the physical examination splenomegaly and a venous pattern on his chest and abdomen are noted. He seems somewhat drowsy and confused but has no focal neurologic signs.

What is the probable source of this patient's confusion?

Option A. Severe anemia

Option B. Hepatic encephalopathy

Option C. Subarachnoid hemorrhage

Option D. Vitamin B12 deficiency

Question: 5. Topic: Alzheimer's Disease

Subject: Medicine

Which one of the following has NOT been identified as a risk factor for Alzheimer-type dementia (AD)?

- Option A. Trisomy 18
- Option B. Head trauma
- Option C. Advanced age
- Option D. Obesity and hypertension

Question: 6. Topic: Korsakoff's Psychosis

Subject: Medicine

In a patient with recent onset of alcohol amnestic disorder, the mental status test most likely to be done poorly is memory of:

- Option A. Political figures of 10 years ago
- Option B. Digits (forward)
- Option C. His own name
- Option D. Three items for 5 minutes

Question: 7. Topic: Amnesia

Subject: Medicine

Which of the following medications may cause amnesia as a side effect?

- Option A. Hydroxyzine
- Option B. Fluoxetine
- Option C. Triazolam
- Option D. Clonidine

Question: 8. Topic: MMSE

Subject: Medicine

The Mini-Mental State Examination (MMSE) tests for:

- Option A. Mood
- Option B. Behavior
- Option C. Intelligence quotient
- Option D. Cognitive function

Question: 9. Topic: Alzheimer's Disease

Subject: Medicine

A 62 year old woman has demonstrated increasing loss of recent memory over a 5 year period, now associated with reduced affect and nominal dysphasia. She dresses neatly and social amenities are preserved. There are no localizing motor or sensory findings.

Which one of the following is the most likely diagnosis?

- Option A. Cerebral vascular disease
- Option B. Hydrocephalus
- Option C. Huntington's disease
- Option D. Alzheimer's disease

Question: 10. Topic: Glasgow Coma Scale

Subject: Medicine

A 27 year old man is brought into the ER after a bicycling accident. A car door suddenly opened in front of him, of which he smashed into and was thrown 15 feet. On examination, he is drowsy and confused. He opens his eyes when his name is called. When he speaks, you understand his words but the sentences do not make sense. He moves all four limbs but does not respond to any commands. He is able to pull both hands away when pinched and squirms when his sternum is rubbed, making no effort to stop you.

What is his Glasgow Coma Scale score?

Option A. 11

Option B. 10

Option C. 9

Option D. 8

Question: 11. Topic: Dementia

Subject: Medicine

Clinical features of multi-infarct dementia may include all of the following, except:

Option A. Parkinsonism

Option B. Deteriorating course

Option C. Evidence of cerebrovascular disease

Option D. Focal neurologic signs

Question: 12. Topic: Delirium Tremens

Subject: Medicine

You see a 49-year-old man in the emergency room with a 20-year-history of alcohol abuse. He is agitated and floridly psychotic, with visual hallucinations and persecutory delusions. On examination his blood pressure, heart rate and respiratory rate are all increased. He is disoriented, sweaty, and has abdominal cramps.

What is the most likely diagnosis?

Option A. Subdural hematoma

Option B. Alcohol intoxication

Option C. Hepatic encephalopathy

Option D. Delirium tremens

Question: 13. Topic: Status Epilepticus

Subject: Medicine

A 58-year-old male with a history of seizure attacks suffered from a 30min loss of consciousness with repetitive seizures with no recovery of consciousness between attacks. What is the best initial treatment for his condition?

Option A. Lorazepam

Option B. Phenytoin

Option C. Phenobarbital

Option D. Carbamazepine

Question: 14. Topic: Essential Tremor

Subject: Medicine

Which one of the following is most likely to be of benefit in patients with essential tremor of the hand?

- Option A. Isoniazid
- Option B. Diazepam
- Option C. Primidone
- Option D. Clonidine

Question: 15. Topic: Brain Death

Subject: Medicine

A 57-year-old white male with coronary artery disease suffered a cardiac arrest while jogging 10 days ago. He was resuscitated after 45 minutes but has remained unresponsive and on a ventilator since then.

Which one of the following is required to diagnose brain death in this patient?

- Option A. Hypothermia
- Option B. Continuous mechanical ventilation
- Option C. The absence of spontaneous body movements
- Option D. Electroencephalographic confirmation

Question: 16. Topic: Brain Death

Subject: Medicine

A 30 year old man has been on life support systems for the past 48 hours following blunt head trauma. Brain death cannot be established in this patient if there is the presence of which of the following?

- Option A. Carotid blood flow
- Option B. Cremasteric reflexes
- Option C. Elevated serum aminoglycoside concentrations
- Option D. Hypothermia

Question: 17. Topic: Cholinergic Toxidrome

Subject: Medicine

A 37 year old male arrives at the Emergency Department unconscious. He is warm and sweaty. His heart rate is 52 bpm, his BP is 90/60. His pupils are constricted, his eyes are teary, and he is drooling. You assume he is suffering from a toxidrome.

What antidote will you give him?

- Option A. Flumazenil
- Option B. Naloxone
- Option C. Glucagon
- Option D. Atropine

Question: 18. Topic: Foot Drop

Subject: Medicine

During the physical exam of a patients foot, you notice an inability to dorsiflex. What nerve root(s) is most likely affected?

- Option A. T12
- Option B. L1
- Option C. L2
- Option D. L4 - L5

Question: 19. Topic: Huntington disease

Subject: Medicine

A 42-year-old white male is brought to your department by his wife because of the progressive loss of his mental abilities, irritability, and some irregular involuntary movements of his hands. She says that she can remember when they were newlyweds, her husband's father had a similar condition at the age of 45 and he died few years later because there was not much doctors could do for him back then. She wants to know if their children may eventually develop a similar condition in the future. None in her family has ever had this type of condition. Which of the following would be the most appropriate answer?

- Option A. Only their male children are at risk
- Option B. If one child develops the disease, siblings are not at risk
- Option C. All their children will inherit the disease
- Option D. Each child has 50% risk of inheriting the disease

Question: 20. Topic: Normal Pressure Hydrocephalus

Subject: Medicine

A 76-year-old male is brought to your office by his son. The patient complains of dizziness that has slowly been worsening over the past year. His description is vague, but he says that he notices the dizziness when he tries to walk. The review of systems is normal, except for increasing problems with his prostate in the last 6 months, with dribbling and accidents at times. The patient admits to going more often, and sometimes without warning. The son states that his father seems more forgetful, slower of speech, and not as full of life as he used to be. A neurologic examination reveals the patient to be oriented x 3, with a somewhat flat affect and a wide-based, slow, shuffling gait. The examination is otherwise normal. His Mini-Mental State Examination (MMSE) score is 22 out of 30. No tremor is noted. A CBC, creatinine level, TSH level, vitamin B12 level and VDRL are all normal.

Which one of the following should you do next?

- Option A. Order a brain MRI
- Option B. Prescribe sertraline (Zoloft)
- Option C. Prescribe carbidopa/levodopa (Sinemet)
- Option D. Order physical therapy

Question: 21. Topic: Essential Tremor

Subject: Medicine

A 66 year old white female consults you because she has developed a tremor of her right hand that interferes with her ability to do needlework. She has noticed that the tremor improves when she rests her hands in her lap and gets worse when she holds them up against gravity. She has developed a slight quiver to her voice as well. Her symptoms started gradually over 6 months ago and have progressed slowly. She remembers her mother having similar problems in her later years. She takes no medications, and her physical examination corroborates her history. No other abnormalities are

noted. A multiple chemistry screen and TSH level are normal.

Which one of the following is most likely to alleviate her tremor?

Option A. Propranolol (Inderal)

Option B. Paroxetine (Paxil)

Option C. Carbidopa/levodopa (Sinemet)

Option D. Bromocriptine (Parlodel)

Question: 22. Topic: Temporal Lobe Lesion

Subject: Medicine

A 40 year old man presents with sporadically occurring behaviour automatisms and olfactory hallucinations. Which one of the following is the most likely diagnosis?

Option A. Schizophrenia

Option B. Schizophreniform psychosis

Option C. Hysterical personality disorder

Option D. Temporal lobe lesion

Question: 23. Topic: Alzheimer's Disease

Subject: Medicine

An 84-year-old black female is brought to your office by her daughter, who is concerned that the mother has memory problems and is neglecting to pay her monthly bills. The mother also is forgetting appointments and asks the same questions repeatedly. This problem has been steadily worsening over the last 1-2 years. The patient has very little insight into her problems, scores 24 out of a possible 30 points on the Mini-Mental State Examination, and has difficulty with short-term recall and visuospatial tasks. Her physical examination and a thorough laboratory workup are normal. A CT scan of the brain reveals diffuse atrophy. Which one of the following is the most likely etiology for the patients memory problem?

Option A. Alzheimers disease

Option B. Dementia resulting from depression

Option C. Lewy body dementia

Option D. Multi-infarct dementia

Question: 24. Topic: Horner's Syndrome

Subject: Medicine

A 54-year-old white male presents with drooping of his right eyelid for 3 weeks. On examination, he has ptosis of the right upper lid, miosis of the right pupil, and decreased sweating on the right side of his face. Extraocular muscle movements are intact. In addition to a complete history and physical examination, which one of the following would be most appropriate at this point?

Option A. A chest radiograph

Option B. MRI of the brain and orbits

Option C. 131 Iodine thyroid scanning

Option D. A fasting blood glucose level

Question: 25. Topic: Seizure

Subject: Medicine

A 52-year-old male with a history of seizure attacks suffered from loss of consciousness and tonic-clonic muscular contractions. His tongue fell back into his throat and he choked.

What is the medication of choice for the treatment of this patient's condition?

- Option A. Phenytoin
- Option B. Valproic acid
- Option C. Tiagabine
- Option D. Phenobarbital

Question: 26. Topic: Peripheral Neuropathy

Subject: Medicine

A 68-year-old male presents to your department complaining of a very horrible sensation in his legs that started out 4 weeks ago as pins and needles tickling him but now has progressed and feels like being stabbed in his feet. He has started to use a walker because he feels that when he walks it feels like stepping on eggshells. The pain has not been responsive to acetaminophen and ibuprofen. The patient's past medical history is significant for diabetes type II treated with metformin and glimepiride. The patient has not been very compliant with medications, especially metformin because he feels it causes him an upset stomach. His most recent HbA1C level was 9.8%. He also has hypercholesterolemia treated with lovastatin and hypertension treated with Lisinopril and amlodipine. His vital signs are temperature 37.4°C, BP is 125/70 mmHg, pulse 85/min, and respirations 15/min. The dorsalis pedis and posterior tibial pulses are +2 bilaterally. No distal muscle weakness or atrophy is observed. Manual esthesiometer with monofilaments is used and reveals decreased sensation from the midfoot distally on both feet. There is no evidence of erythema, edema, or any wounds on either foot. He has tenderness to light touch on both feet. Labs reveal normal Vitamin B12 and thyroid function.

Which of the following would be the most appropriate treatment for this patient's pain?

- Option A. Daily metformin compliance
- Option B. Metoclopramide
- Option C. Pregabalin
- Option D. Alpha lipoic acid

Question: 27. Topic: Status Epilepticus

Subject: Medicine

A 58-year-old male with a history of seizure attacks suffered from a 30 min loss of consciousness with repetitive seizures with no recovery of consciousness between attacks. What is the disorder this patient is suffering from?

- Option A. Tonic-clonic seizure
- Option B. Absence seizure
- Option C. Atonic seizure
- Option D. Status epilepticus

Question: 28. Topic: Diagnostic Investigations

Subject: Medicine

A 50-year-old male is brought to the emergency department because of a syncopal episode. Prior to the episode, he felt bad for 30 minutes, then developed nausea followed by vomiting. During a second bout of vomiting he blacked out and fell to the floor. His wife did not observe any seizure

activity, and he was unconscious only for a few seconds. His history is otherwise negative, his past medical history is unremarkable, and he currently takes no medications. A physical examination is normal.

Which one of the following would be the most helpful next step?

Option A. CT of the head

Option B. Carotid ultrasonography

Option C. A CBC and complete metabolic profile

Option D. An EKG

Question: 29. Topic: Heatstroke

Subject: Medicine

A 72-year-old male is brought to your office by a friend because of increasing confusion, irritability, and difficulty walking. This began shortly after the patient's car broke down and he had to walk a mile to get to a phone and call the friend. The temperature outdoors has been near 39.5°C (100°F).

On examination you note a rectal temperature of 39.5°C (103.1°F). His pulse rate is 110 beats/min and his blood pressure is 100/60 mm Hg.

Which one of this patient's findings indicates that he has heatstroke rather than heat exhaustion?

Option A. Confusion

Option B. Sweating

Option C. His temperature

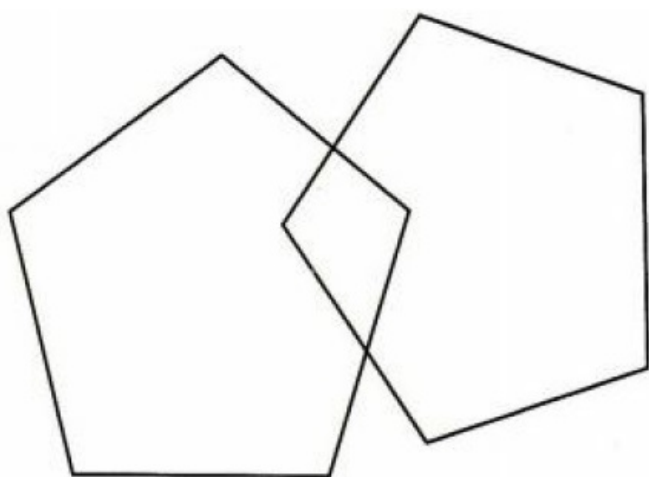
Option D. His heart rate

Question: 30. Topic: Mini Mental Status Exam (or MMSE)

Subject: Medicine

While performing the Mini-Mental State Exam the PCP asks her patient to copy the following design.

What cognitive function is being assessed by this request?



Option A. Language

Option B. Orientation

Option C. Registration

Option D. Visual-motor integrity

1	B	The conditions listed are all causes of seizures. Of course, there are many other causes of seizures in the elderly, including primary and metastatic neoplasias (e.g., electrolyte disorders). However, in the geriatric population, cerebrovascular disease is the most common cause of seizures, with about 10% of stroke victims developing epileptic seizures. Seizures are more common following hemorrhagic strokes compared to nonhemorrhagic strokes.
2	D	Intracranial hemorrhage (ICH) causes 10%-15% of all strokes, and is associated with the highest mortality. The rate of ICH is expected to double in the next 50 years as our population ages, as the incidence of ICH increases after age 55. The incidence in blacks is twice that of whites. Other risk factors include diabetes, menopause, excessive alcohol use, low serum cholesterol, and low education levels. However, hypertension is the most common cause of ICH, and its most important risk factor. In patients with hypertension, the risk for ICH increases further if the patient also smokes, or is nonadherent to a medication regimen. Having hypertension also increases the risk of ICH in people younger than 55 years. While atrial fibrillation is a risk factor for stroke, it is not an independent risk factor for ICH.
3	D	Guillain-Barré syndrome is an acute, usually rapidly progressive inflammatory polyneuropathy characterized by muscular weakness and mild distal sensory loss. Cause is thought to be autoimmune. In about 2/3 of patients, the syndrome begins 5 days to 3 weeks after an infectious disorder, surgery, or vaccination. Infection is the trigger in > 50% of patients; common pathogens include <i>Campylobacter jejuni</i>, enteric viruses, herpesviruses (including cytomegalovirus and those causing infectious mononucleosis), and <i>Mycoplasma</i>. Flaccid weakness predominates in most patients; it is always more prominent than sensory abnormalities and may be most prominent proximally. Relatively symmetric weakness with paresthesias usually begins in the legs and progresses to the arms, but it occasionally begins in the arms or head. In 90% of patients, weakness is maximal at 3 weeks. Deep tendon reflexes are lost. Sphincters are usually spared. Facial and oropharyngeal muscles are weak in > 50% of patients with severe disease. Respiratory paralysis severe enough to require endotracheal intubation and mechanical ventilation occurs in 5 to 10%. Diagnosis is clinical. Treatment includes plasmapheresis, IVIg, and, for severe cases, mechanical ventilation. Corticosteroids (oral or IV) have not been found to have a clinical benefit.
4	B	Hemochromatosis is the abnormal accumulation of iron in parenchymal organs, leading to organ toxicity. It is the most common inherited liver disease in whites and the most common autosomal recessive genetic disorder. Hemochromatosis can cause liver damage and lead to hepatic encephalopathy. Hepatic encephalopathy is a neuropsychiatric syndrome. It most often results from high gut protein or acute metabolic stress (eg, GI bleeding, infection, electrolyte abnormality) in a patient with portal-systemic shunting. Symptoms are mainly neuropsychiatric (eg, confusion, flapping tremor, coma). Diagnosis is based on clinical findings. Treatment usually is correction of the acute cause, restriction of dietary protein, and administration of oral lactulose.
		Many studies indicate that the risk of Alzheimer disease (AD) is significantly higher in women than in men. Some authorities have postulated that this difference is due to the

5	A	loss of the neurotrophic effect of estrogen in postmenopausal women. The cause of AD is unknown. The prevalent notion is that most cases of AD are caused by converging risk factors that include advancing age (choice B), head injury (choice C), and lipoprotein E-epsilon 4 genotype, among other risk factors that appear to trigger a pathophysiologic cascade that, over decades, leads to dementia. Furthermore obesity (choice D), insulin resistance, vascular factors, dyslipidemia, and hypertension are also risk factors for Alzheimer-type dementia. Additional risk factors include low education level, smoking, Down's syndrome (Trisomy 21) and aluminum (still controversial). Familial forms of AD (choice E) account for less than 7% of all cases of AD, with most cases being sporadic (ie, not inherited).
6	D	Korsakoff's psychosis (Korsakoff's/alcoholic amnestic syndrome) occurs in 80% of untreated patients with Wernicke's encephalopathy. A severe or repeated attack of postalcoholic delirium tremens can trigger Korsakoff's psychosis whether or not a typical attack of Wernicke's encephalopathy has occurred first. Immediate memory is severely affected (best tested with '3 items for 5mins'); retrograde and anterograde amnesia occurs in varying degrees. Patients tend to draw on memory of remote events, which appears to be less affected than memory of recent events. Disorientation to time is common. Emotional changes are common; they include apathy, blandness, or mild euphoria with little or no response to events, even frightening ones. Spontaneity and initiative may be decreased. Confabulation is often a striking early feature; bewildered patients unconsciously fabricate imaginary or confused accounts of events they cannot recall; these fabrications may be so convincing that the underlying disorder is not detected.
7	C	Triazolam is a benzodiazepine medications used for sleep disorders. It can be addictive if used improperly. This medication can cause sedation and, because of this, use of triazolam by seniors can contribute to falls and accidents and cause confusion and amnesia.
8	D	The MMSE is most commonly used in clinical settings. It is considered valuable because it assesses a broad range of cognitive abilities (i.e., memory, language, spatial ability, set shifting) in a simple and straightforward manner. In addition, the wide use of the MMSE in epidemiologic studies has yielded cutoff scores that facilitate the identification of patient with cognitive dysfunction.
9	D	In Alzheimer's disease, the ability to remember, think, understand, communicate, and control behavior progressively declines because brain tissue degenerates. The symptoms of Alzheimer's disease are similar to those of other dementias. They include memory loss, changes in personality, problems using language, disorientation, difficulty doing daily activities, and disruptive behavior. A person with Alzheimer's disease may not have all the symptoms. Symptoms usually begin subtly. People may not notice any changes at first, depending on what activities they are involved in. At some point, people with Alzheimer's disease may notice they are not doing their job or activities quite as well as in the past. In most people with Alzheimer's disease, the first sign is forgetting recent events. But the disease may begin with changes in personality. For example, people may become emotionally unresponsive, depressed, or unusually fearful or anxious. Or emotions may rapidly and unpredictably change from one extreme to another. Early in the disease, people have difficulty using language. They may use a general word or many words rather

		than a specific word, use words incorrectly, or be unable to find the right word. They become less able to use good judgment and think abstractly.
10	B	The Glasgow coma scale (GCS) is determined by assigning points to the following three questions: Eyes open: Spontaneously (4 points), to speech (3), to pain (2), none (1). Best verbal response: Orientated (5 points), confused (4), Inappropriate words and jumbled phrases consisting of words (3), incomprehensible sounds (2), none (1). Best motor response: Obeys commands (6 points), localizes pain (5), withdraws to pain (4), flexion (abnormal) to pain (3), extension to pain (2), none (1). This patient has scores of 3, 3 and 4 to the three questions respectively, making his GCS score 10.
11	A	Multi-infarct dementia, also known as vascular dementia, is the second most common form of dementia after Alzheimer disease (AD) in the elderly (persons over 65 years of age). The term refers to a group of syndromes caused by different mechanisms all resulting in vascular lesions in the brain. Multi-infarct dementia can have a deteriorating course. Patients can show evidence of cerebrovascular disease, focal neurologic signs and cognitive impairment.
12	D	Delirium tremens (DTs), a very serious set of symptoms, may result if alcohol withdrawal is left untreated. Delirium tremens usually does not begin immediately; rather, it appears about 2 to 10 days after the drinking stops. In delirium tremens, the person is initially anxious and later develops increasing confusion, sleeplessness, nightmares, excessive sweating, and profound depression. The pulse rate tends to speed up. Fever typically develops. The episode may escalate to include fleeting hallucinations, illusions that arouse fear and restlessness, and disorientation with visual hallucinations that may incite terror. Objects seen in dim light may be particularly terrifying, and the person becomes extremely confused. The floor may seem to move, the walls fall, or the room rotates. As the delirium progresses, the hands develop a persistent tremor that sometimes extends to the head and body, and most people become severely uncoordinated. Delirium tremens can be fatal, particularly when untreated.
13	A	Status epilepticus (SE) is prolonged, repetitive seizure activity that lasts more than 20 to 30 minutes, during time which the patient is unconscious. Status epilepticus is a medical emergency with a significantly poor outcome; it can result in death if not treated aggressively. A useful algorithm for the treatment of SE is as follows: >Start an IV line, administer a 50-mL bolus of 50% dextrose IV and 100 mg of thiamine, then start the anticonvulsant. In some settings where drug intoxication might be likely, consider also adding naloxone at 0.4-2.0 mg IV to the dextrose bag. >Administer lorazepam (0.1 mg/kg) IV over 5 minutes [lorazepam preferred due to long duration of effect and less interference with EEG], followed preferably by fosphenytoin (15-20 mg phenytoin equivalents PE/kg at a rate not to exceed 150 mg PE/min) or phenytoin (18-20 mg/kg at a rate not to exceed 50 mg/min). Never mix phenytoin with a 5% dextrose solution; put it in a normal saline solution to minimize the risk of crystal precipitation. >Intubate if necessary, and control hyperthermia. >If seizures continue after 20 minutes, give additional fosphenytoin (10 mg PE/kg IV) or phenytoin (10 mg/kg IV). Aim for a total serum phenytoin level of about 22-25 µg/mL.

		>If seizures continue after 20 minutes, give phenobarbital (15 mg/kg IV). Several other alternatives to phenobarbital, such as valproate, levetiracetam, propofol, midazolam, or pentobarbital, are shorter acting than phenobarbital and allow for periodic neurologic assessments. >If seizures continue, consider administering general anesthesia with medications such as propofol, midazolam, or pentobarbital titrated by IV drip to a burst-suppression pattern in the EEG trace.
14	C	Primidone and propranolol are the cornerstones of maintenance medical therapy for essential tremor. These medications provide good benefit, reducing tremor amplitude in approximately 50-70% of patients. Usually, propranolol is started first in younger patients and primidone is started first in older individuals. Generally, propranolol carries more risk of serious adverse effects in older patients than in younger ones. If the patient has a relative contraindication to propranolol, such as pulmonary disease or heart block, starting with primidone is preferable. > Medications with unknown effectiveness include benzodiazepines, beta-blockers other than propranolol, calcium channel blockers, clonidine, gabapentin, and isoniazid.
15	D	An electroencephalogram (EEG) is one of the most well-validated tests for confirming brain death. The presence of hypothermia will confound any attempt to determine brain death; the patient must be warm to ensure the diagnosis. The mechanical ventilator may give false readings and must be discontinued to get a real picture of the patients ability to breathe. Spontaneous body movements can occur even hours after actual brain death. Corneal reflexes never occur after death.
16	D	Hypothermia should be excluded before making a diagnosis of brain death. If present, it can be the cause of a flat EEG. Carotid blood flow implies the presence of cerebral circulation, and hence the presence of some viable tissue. The absence of carotid blood flow does not help diagnosis either due to the presence of the vertebral system. Cremasteric reflexes are spinal reflexes (and not brainstem reflexes), and their presence does not exclude the diagnosis. Elevated serum aminoglycoside concentration is nonspecific, and has little bearing. Cerebral edema does not rule out brain death.
17	D	This patient is presenting with classic signs and symptoms of toxicity with an cholinergic drug. The antidote for this is with an anticholinergic drug such as atropine. Atropine will raise the heart rate and reverse the other effects of this toxidrome.
18	E	Foot drop can be associated with a variety of conditions such as dorsiflexor injuries, peripheral nerve injuries, stroke, neuropathies, drug toxicities, or diabetes. Often drop foot is caused by injury to the common peroneal nerve (also called common fibular nerve, peroneal nerve, external popliteal nerve, lateral popliteal nerve), which is derived from the dorsal branches of the fourth and fifth lumbar and the first and second sacral nerves. The common peroneal nerve branches from the sciatic nerve. It includes the deep and superficial peroneal branches. These nerves provide sensation to the anterior and lateral parts of the legs and to the top of the feet. Symptoms of common peroneal nerve injury (foot drop) may include: Inability to point toes toward the body (dorsiflexion) Pain Weakness

Numbness (on the shin or top of the foot)
Loss of function of foot
High-stepping walk (called steppage gait or footdrop gait)

This patients symptoms at presentation and the family history are suggestive of Huntington disease (HD). Up to now, HD is an incurable, adult-onset, autosomal dominant inherited disorder. Characteristic features of HD include involuntary movements, dementia, and behavioral changes. The most striking neuropathology in HD occurs within the neostriatum, in which gross atrophy of the caudate nucleus and putamen is accompanied by selective neuronal loss and astrogliosis. The genetic basis of HD is the expansion of a cysteineadenosine- guanine (CAG) repeat encoding a polyglutamine tract in the N-terminus of the protein product called huntingtin. Since it is an autosomal dominant disorder, each generation is affected and through genetic anticipation, a generation may develop the disease earlier than the previous generation. Each child has 50% risk of inheriting the disease and childs risk is independent of whether their sibling has the disorder or not.

> Only their male children are at risk (choice A) is incorrect. This occurs in X-linked recessive inherited disorders.

> If one child develops the disease, siblings are not at risk (choice B) is incorrect. In autosomal dominant disorders each child has 50% risk of inheriting the disease and a childs risk is independent of whether his/her sibling has the disorder or not.

> All their children will inherit the disease (choice C) would mean 100% risk of inheriting the disease which is incorrect. Each child has 50% risk of inheriting the disease.

> Each child has 25% risk of inheriting the disease (choice E) would be consistent with an autosomal recessive inheritance pattern (where both parents are carriers); HD is an autosomal dominant inherited disease.

Key point:

Huntington disease is an autosomal dominant inherited disorder that presents with involuntary movements, dementia, and behavioral changes. Each generation is affected and each child has 50% risk of inheriting the disease. acteristic features of HD include involuntary movements, dementia, and behavioral changes. The most striking neuropathology in HD occurs within the neostriatum, in which gross atrophy of the caudate nucleus and putamen is accompanied by selective neuronal loss and astrogliosis. The genetic basis of HD is the expansion of a cysteineadenosine- guanine (CAG) repeat encoding a polyglutamine tract in the N-terminus of the protein product called huntingtin. Since it is an autosomal dominant disorder, each generation is affected and through genetic anticipation, a generation may develop the disease earlier than the previous generation. Each child has 50% risk of inheriting the disease and childs risk is independent of whether their sibling has the disorder or not.

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> All their children will inherit the disease (choice C) would mean 100% risk of inheriting the disease which is incorrect. Each child has 50% risk of inheriting the

		disease. > Each child has 25% risk of inheriting the disease (choice E) would be consistent with an autosomal recessive inheritance pattern (where both parents are carriers); HD is an autosomal dominant inherited disease. Key point: Huntington disease is an autosomal dominant inherited disorder that presents with involuntary movements, dementia, and behavioral changes. Each generation is affected and each child has 50% risk of inheriting the disease. h generation is affected and each child has 50% risk of inheriting the disease. child has 25% risk of inheriting the disease (choice E) would be consistent with an autosomal recessive inheritance pattern (where both parents are carriers); HD is an autosomal dominant inherited disease. Key point: Huntington disease is an autosomal dominant inherited disorder that presents with involuntary movements, dementia, and behavioral changes. Each generation is affected and each child has 50% risk of inheriting the disease. .
20	A	This patient presents with the classic triad for normal pressure hydrocephalus: ataxia, urinary incontinence, and dementia. MRI should be the first step in the diagnosis of this condition, both to rule out other conditions and to identify changes suggestive of normal pressure hydrocephalus. These include enlargement of the ventricles with preservation of cerebral parenchyma. Brainstem auditory evoked response testing is used for evaluating cochlear problems. While some other features of normal pressure hydrocephalus overlap with those of depression and Parkinsons disease, this patients constellation of signs and symptoms are more typical for normal pressure hydrocephalus. Physical therapy is not indicated prior to making the diagnosis.
21	A	This patient has essential tremor, which is frequently a familial condition. Primidone and propranolol are the drugs most likely to provide relief of essential tremor. Other Beta-blockers such as atenolol and metoprolol may not be as effective, although results of trials are mixed. Antiparkinsonian medications such as carbidopa and bromocriptine have no effect on essential tremor. Carbamazepine is occasionally useful, but is much less likely to be effective than primidone.
22	D	Olfactory hallucinations are related to lobe lesions throughout the entire brain, though mainly to the temporal lobe. Complex automatic behaviorisms are related to lesions of the temporal lobe. Visual hallucinations (formed images) are related to lesions of the posterior temporal lobe or amygdala-hippocampus. Visual hallucinations (unformed images) are related to lesions of the occipital lobe.
23	A	The patient shows classic symptoms of early Alzheimers disease, with difficulties in at least two cognitive domains that are severe enough to influence daily living. > Depression (choice B) was previously thought to cause pseudodementia with significant regularity. However, several recent studies have shown that treating depressive symptoms does not result in significantly improved cognitive performance. It is now believed that progressive memory loss frequently results in depressive symptoms, rather than the converse. > Lewy body dementia (choice C) is associated with physical findings of parkinsonism and

		often the presence of visual hallucinations, both of which are absent in this patient. > There are no signs of multiple infarcts (choice C) on brain imaging, effectively ruling out this diagnosis. > Normal aging changes can decrease ones ability to retrieve information but do not influence daily living and are usually noticed more by the patient than by family members.
24	A	The clinical triad of Horners syndromeipsilateral ptosis, miosis, and decreased facial sweating suggests decreased sympathetic innervation due to involvement of the stellate ganglion, a complication of Pancoasts superior sulcus tumors of the lung. Radiographs or MRI of the pulmonary apices and paracervical area is indicated. Horners syndrome may accompany intracranial pathology, such as the lateral medullary syndrome (Wallenbergs syndrome), but is associated with multiple other neurologic symptoms, so MRI of the brain is not indicated at this point. The acetylcholine receptor antibody level is a test for myasthenia gravis, which can also present with ptosis, but not with full-blown Horners syndrome. Diabetes mellitus and thyroid disease do not commonly present with Horners syndrome.
25	B	Valproic acid is considered the agent of first choice for the treatment of grandmal (tonic-clonic) seizures. It increases the levels of GABA by affecting the potassium channels and also creates direct membrane stabilizing effect. Since it acts through GABA it is the best medication for grandmal seizures with fewer side effects. It is administered orally with a dose of 1000-3000 mg in divided doses. Medication should be taken with food to reduce the GI upset. > Phenytoin (choice A), followed by topiramate, carbamazepine (choice E), and zonisamide are suitable alternatives. > Tiagabine (choice C) is a weak medication for the treatment of grandmal seizure and it is effective for the treatment of petitmal seizures. > Phenobarbital (choice D) is also not the choice of medication for grandmal seizure but it is a good choice for status epilepticus.
26	C	This patient presents with complaints of dysesthesias and given his history of uncontrolled diabetes mellitus, this is concerning for diabetic neuropathic pain. Dysesthesias are unpleasant sensations that are often described as electric shock, pins and needles, or feelings as though one is walking on broken glass with barefoot. Diabetic neuropathy is present in at least 50% of diabetes patients and while its primary symptoms are unpleasant, the secondary complications such as falls, foot ulcers, arrhythmias, and ileus are even more serious. To confirm this diagnosis, it is important to do physical examination in patients who present with its common symptoms, as signs are better predictors of polyneuropathy than symptoms. Moreover, electrodiagnostic studies further increase the accuracy of diagnosis as sensitive, specific and validated measures of the presence of polyneuropathy. Management of diabetic neuropathy obviously includes endeavors to control blood glucose, but this would not be sufficient for immediate relief of pain in the patient. For neuropathic pain management available oral agents include antidepressants and anticonvulsant drugs. Pregabalin (choice C) has been found to have the same efficacy and safety in older patients and results are comparable to those observed in younger patients with neuropathic pain.

> Daily metformin (choice A) would gradually decrease HbA1C over a period of several months and greatly improve the patients overall condition, but his pain needs immediate attention.

> Metoclopramide (choice B) is used in the treatment of diabetic gastroparesis but it would not be the best choice for treating neuropathic pain.

> Alpha lipoic acid (choice D) has been studied as treatment option for diabetic neuropathy but there have been insufficient evidence to support or refute the usefulness of this drug in the treatment of neuropathic pain.

> Amitriptylline (choice E) is useful as analgesic for neuropathic pain but its benefits in elderly are limited by the increased adverse effects reported in these patients. Generally, tricyclic antidepressants should be avoided in patients who are > 65.

Key point:

The most commonly used oral agents for diabetic neuropathic pain are antidepressants and anticonvulsants. Pregabalin has the same efficacy and safety in older patients and results are comparable to those observed in younger patients with neuropathic pain.

27 D Status epilepticus is prolonged, repetitive seizure activity that lasts more than 5-10 minutes, without spontaneous cessation, or recurrent seizures without full return to consciousness inter-ictally (between seizures). Status epilepticus is a medical emergency with a significantly poor outcome; it can result in death if not treated aggressively.

Tonic-clonic seizure - specific movements of the arms and legs and/or the face may occur with loss of consciousness. The seizure usually lasts 5 to 20 minutes.

Absence seizures cause a short loss of consciousness (just a few seconds) with few or no symptoms

Atonic and myoclonic seizures are not characterized by loss of consciousness.

28 D The workup of patients with syncope begins with a history and a physical examination to identify those at risk for a poor outcome. Patients who have a prodrome of 5 seconds or less may have a cardiac arrhythmia. Patients with longer prodromes, nausea, or vomiting are likely to have vasovagal syncope, which is a benign process. Patients who pass out after standing for 2 minutes are likely to have orthostatic hypotension. In most cases, the recommended test is an EKG. If the EKG is normal, dysrhythmias are not a likely cause of the syncopal episode. Laboratory testing and advanced studies such as CT or echocardiography are not necessary unless there are specific findings in either the history or the physical examination.

29 A Heat exhaustion and heatstroke are both on the continuum of heat-related illness. Heatstroke is a much more severe condition than heat exhaustion. Evidence of central nervous system dysfunction is evidence of heatstroke rather than heat exhaustion, even if other symptoms are not severe and point to heat exhaustion. Heatstroke is a medical emergency. Heatstroke is the most severe form of the heat-related illnesses and is defined as a body temperature higher than 41.1°C (106°F) associated with neurologic dysfunction. However, when a patient is allowed to cool down prior to measurement of the temperature (as may occur during transportation in a cool ambulance or evaluation in an emergency department), the measured temperature may be much lower than 41°C, making the temperature criterion relative. Similarly, some patients may retain the ability to sweat, removing anhidrosis as a criterion for the diagnosis of heatstroke. Therefore, strict adherence to the definition is not advised because it may result in dangerous delays in diagnosis and

therapy.

30

D

While each possible choice listed is assessed during the Mini-Mental State Exam, the specific request to copy the given design screens for visual-motor integrity. A correct response includes correctly copying all ten angles, two of which must intersect. The correct response is awarded a score of 1 point on this 30-point screening exam.